

The prevention of chronic diseases and its social outcomes

Mission of Medicine

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Abstract

An ancient but even today quite topical Latin sentence says:

“It is better prevent the disease than to cure it”. In a global society as today it is, the prevention of chronic diseases is of great social importance, as well as it is important in the economic point of view, since preventing chronic kidney disease, chronic renal Insufficiency, which have a great dispersion among the Albanian population and high cost of its ongoing cure, it does not only improves significantly the quality of life of these patients, but also reduces to minimum health budget expenditures that are very significant for this category of sick.

Speaking of chronic diseases affecting the human organism all over the life, the chronic kidney diseases share their own part, having also a significant importance into the group of human pathologies as a whole. Prevention and cure of chronic kidney diseases (C. K. D.) is undoubtedly an important problem and mission of nephrology, nowadays, because as the old medicine postulate predicts – it is easier to prevent the disease than to cure it. Prevention and correct cure of primary nephropathies, secondary nephropathies and cardiovascular complications, the last ones considered as a tierce cause of nephropathies, it is obviously a target of the contemporary medicine, aiming at both the utmost reduction of renal morbidity and the budget cost of cure and treatment e.g. patients under substitute therapy, dialysis and transplant.

Introduction

Number of chronic kidney diseases which develop the patient towards chronic renal insufficiency C.R.I. is very high, including among them chronic pyelonephritis C.P.N, primary and secondary chronic glomerulonephritis C.G.N, congenital kidney diseases, most frequent of them – renal poly cystosisrenal vascular diseases, nephro- angio sclerosis, arterial hypertension –malign, bilateral stenosis of renal arteries .It should be stressed that G.N.M. both primary and secondary, develop more quickly the patient towards chronic renal insufficiency in comparison with other renal pathology . It is worth to mention another data, that is, in our country the chronic pyelonephritis C.P.N. is at the first rank as a cause of chronic renal insufficiency C.R.I. , whereas according to other available data , most frequently the very causes of C.R.I. are

diabetic nephropathy and arterial hypertension of highest values. The very end of all chronic kidney diseases C.K.D. is the chronic renal insufficiency C.R.I. Thus, it is significant to know, identify, prevent the causes, which might be primary, secondary or tertiary ; further the correct medical treatment of patients affected by chronic kidney diseases C.D.K. would impede and delay the aggravation of kidney's injuries, which soon or later, depending on the cause, develop the patient towards chronic kidney disease C.K.D. with its consequences ; in the mean time there will be a conspicuous improvement of patient's life quality on one side, and on the other side there will be a drastic reduction of cost of curing the patients with substitute therapies, e.g. dialysis and transplant.

Premises

The present thesis has decided the following priorities :

1. High potential risk of chronic kidney diseases to develop towards chronic renal insufficiency with its consequences.
2. Fearsome growth of the C.R.I. incidence, caused by secondary nephropathies of diabetes and hypertension of high values.
3. Intervention of other risk factors as tertiary causes in positioning of chronic kidney diseases e.g. cardiopathies, diabetes, obesity, ageing, smoking .
4. High budget cost needed for the patients under medical treatment with dialysis and transplant.
5. First studying thesis of this kind in our country.
6. Related to above item the thesis will serve as example for other districts.
7. In the last analysis the present thesis will help to compile the national register of nephrology.

Research

Chronic renal insufficiency C.R.I. is a multi systemic pathology meaning that it affects at the same time a great deal of organs and systems of organism. In relation to that pathology the extension of injuries in all the organs and systems of organism is done gradually and the disease passing progressively stage after stage afflicts and damages the health condition of patient, consequently his life quality, up to impose the need of a treatment with substitute therapy e.g. dialysis or transplant, both of them costly high.

Clinically the disease in its three first stages possesses the base disease symptoms of chronic renal insufficiency C.R.I. ; while the disease passes at the fourth stage there is an evident multi systemic installation of disease. The arterial hypertension is present in more than 80 % of cases ; further more its combination with cardiac insufficiency

and uremic pericarditis afflicts gravely and threatens the patients' life up to the extent so that a lot of authors figures the pericarditis as " the death bell ".

Appearance of exudate pericarditis and heart tamonade are serious complications for which the patient has to undergo urgently the dialysis, otherwise his death is imminent. Anemia as a cohabitant of each disease is present in almost 100 % of patients and on one side it harms more the patient health condition and on the other side it is costly high. Other serious complications of chronic kidney insufficiency are – metabolic acidosis, cerebral edema, encephalopathy uremic comma, hypocalcemia and hypocalcemic convulsions . Pulmonary manifestations consist in acute pulmonary edema caused by hydro saline overcharge which clinically manifests a medical emergency by immediate start with – expressed dyspnea, foaming cough, cyanosis, grave health condition, anxiety, fear, sweating – on such occasion the patient needs an immediate intervention, otherwise the patient would face a death risk. Besides what above mentioned, those patients manifest other disorders of digestive apparatus e.g. anorexia, vomiting, diarrhea, stomatitis, ulcer, and metabolic disorders of Calcium, Phosphor, Natrium. Osseous manifestations consist in osseous diseases e.g. fibrous osteitis and osseous sclerosis, both of them are the cause for fissures and fractures of long bones. Proteinic hyper catabolism on its side is the cause of further growth of azotemia and creatinemia, consequently developing deterioration of patients' health condition.

Chronic renal insufficiency is a pathology which in recent years seems to appear as an entity by exponential growth all over the world. Epidemiologic data reveal an alarming situation so that to make appeal and worry the World Health Organization, the political systems of various countries including those in development. Several years ago a report of LYSASAGHT made known that the number of patients in dialysis was more than one million with a growing rate 7 % per year, and the forecast was for a double growth of them by the 2010¹.

Frequently the chronic renal insufficiency C.R.I. is not a mere disease in itself neither a part of kidney as a congenital one ; in most of the cases it is as a part of the cases caused by other pathologies, frequently well depicted and known, which slowly and not painfully afflict the kidney establishing in it irreversible injures developing progressively the patient towards the chronic renal insufficiency. Within this framework as a risk factor of renal injures it can be mentioned:

- diabetes mellitus
- hypertension in high values
- cardiopathies

¹ LYSAGHT Maintenance Dialysis Popolacion Dynamycs:Current Trends and Long-Term Implicacions J Am Soc Nephrol 13: S 37 –S 40, 2002

- obesity
- ageing
- autoimmune diseases
- systemic infections
- itu
- urinary obstructions
- stones of urinary apparatus
- tumors
- family anamnesis
- acute renal insufficiency
- diminution of renal mass ; “ nephrotomy ” and so on
- exposure towards some drugs
- under weight births

Two are the diseases of high risk which develop the patient towards the chronic renal insufficiency ; diabetes mellitus and arterial hypertension of high values .A great deal of chronic renal diseases at the initial stage of C.R.I. slowly go on progressing year after year without clinical characteristic symptoms. In this framework it is worthy to describe the classification of chronic kidney diseases C.K.D. depending on the stages. Actually this classification is done on the basis of glomerule filtration G.F. which depending on its level determines the stage, too. Since the measure of glomerule filtration is not done in our country, as a criteria for classification of chronic kidney diseases C.K.R. besides the anamnesis, clinic -bio chemical and imaginary data, is reckoned the level of blood creatinine, where the normal value is 1.3 mgr. % for men and 1.4 mgr. % for women ; plus the presence of proteinuria and hematuria .

According to G.F., the chronic renal insufficiency is classified as follows :

- first stage	G.F.	>	90 ml./min. per 1.73 m ²
- second stage	G.F.	>	60-89 ml./min. per 1.73 m ²
- third stage A	G.F.	>	45-59 ml./min. per 1.73 m ²
- third stage B	G.F.	>	30-44 ml./min. per 1.73 m ²
- forth stage	G.F.	>	15-29 ml./min. per 1.73 m ²
- fifth stage	G.F.	>	15 ml./min. per 1.73 m ²

Whereas according to the creatinine level, the chronic kidney diseases, are classified as follows :

- first stage	Creatinemia	Men	1.3 mgr. %	Women 1.4 mgr. %
- second stage	Creatinemia	Men	1.3 -1.4 mgr. %	Women 1.4 -3.0 mgr. %
- third stage	Creatinemia	Up to	3.0 mgr. %	
- forth stage	Creatinemia	From	3.0 up tp 10 mgr. %	
- fifth stage	Creatinemia	Over	10 mgr. %	

The greater part of authors, nowadays, report that the problems related to the chronic kidney diseases C.K.D. are becoming and assuming the form of “ a real social emergency “, all of that caused by the exponential growth of cases with chronic kidney diseases, as a consequence of following reasons :

- ageing
- tardy diagnosis
- the disease frequently develops without manifestations and conspicuous symptoms.

With reference to today literature, during this epidemiologic transition the data denote:

- In the United Kingdom, in relation to adult people, incidence of chronic kidney diseases C.K.D., is one for 10 persons
- In the United States / according to a report of March 2007, for the period 1999-2004, the incidence of C.K.D. was present in 17 % of adult persons.
- In Europe with reference to recent data, about 12 % of adult persons suffer from chronic kidney diseases
- The same data are reported for Northern Spain and Ireland.²
- In Italy the number of person in dialysis treatment is progressively growing.

Thus, according to the data of the Italian Register of Transplants, in 1972 the number of transplants was 611 ; further more in March 2006, the number of patients waiting for dialysis was 6339. The patients under dialyzing treatment are considered as the iceberg top because as the valuations suggest - one patient in dialysis corresponds to a number of 200 other patients with a compromising condition of renal function. According to approximal valuations there are nowadays about 300 millions of people all over the world who bear a renal injury, but only a part of them develops towards the uremia stage in which should it be necessary a treatment with substitute therapy,

² Prevalence of Chronic Kidney Disease and Associated Risk Factor- United States MMWR 2007;56,161,165

that is dialysis or transplant. Unfortunately the clinic data denote that a great deal of patients affected by a renal damage, ever so easy, do not develop up to the dialysis stage, because they cease to be alive ahead of time for cardiovascular diseases. The chronic kidney diseases, C.K.D., in particular the chronic renal insufficiency C.R.I., are multi systemic diseases meaning that they afflict simultaneously a lot of organs and systems, furthermore they should afford a big budget for conservative medical treatment, ever bigger, for substitute medical therapy e.g. dialysis or transplant.

The data provided from the Italian state reveal that the cost of one dialysis is 150 euro per patient, whereas for one year is 22.800 euro. Making calculations for 35.000 patients the cost goes to an overwhelming amount of 800 millions euro. The cost of expenses becomes even bigger by adding up the cost of transport, drugs, hospitalizing and nursing, supporting and tutoring, lastly the cost of invalidism and so on.

A report of LYAGHT denotes that in the United States the cost for one patient in dialysis is 66.000 euro and the yearly cost is equal to 800 trillion (1012) euro.

In the mean time about 17 % of adult people in the United States manifest a renal injury.

The data of the year 2004 with reference to some European countries denote the sanitary cost expressed as percentage ratio of the Gross National Production (G.N.P.) to the General Domestic Production (G.D.P.), as follows :

- Italy	8 %
- Germany	11 %
- France	9.5 %
- United Kingdom	7.8 % ³

From these data by a correlative valuation we can account the cost of dialysis as a ratio to the sanitary cost so that to arrive at the following conclusions :

	Ratio
	Dialysis cost / sanitary cost per person
- Itali	25
- Germany	20
- France	35
- United Kingdom	30

³ Simeoni PG, Bonomini M, et al. Censimento 2004 dei Centri di Nefrologia e Dialisi Italiani. Abruzzo-Lazio-Marche-Molise-Umbria. G Ital Nefrol 2005; 22,353-364

Conclusions

From the above mentioned we see that the cost of chronic periodic dialysis is preponderant in sanitary cost of each country.

Undoubtedly in our country, too, the cost of dialysis takes a considerable part of the sanitary cost ; in the year 2007 there were 267 patients enrolled to undergo dialysis treatment and actually the number of them and those waiting is bigger.

The cost of one dialysis session is approximately 150 thousand ALL x three session / week x 270 patients, finally the year cost amount is 6.156.000 ALL, relatively considerable for the budget of our country.

From all above we realize that the chronic renal insufficiency C.R.I. should be considered as a disease of an increasing frequency and with a sensitive social impact, because even in its slightest manifestations it will largely increase morbidity, invalidity and mortality, in particular on the cases where the disease itself in its course develops cardiovascular complications.

In the last analysis, there should be as a priority the prevention and correct medical treatment of chronic renal insufficiency C.R.I., so that to prevent or to delay it as long as possible .Thus, revealing in time of a chronic kidney disease C.K.D. and a suitable medical treatment in due time, is an advantage in impending of them to develop towards chronic kidney insufficiency, further towards dialysis, at least by a diminution of 20 %.

Should it be realized such a thing it will be possible, on one side to turn back in normal life a great deal of patients, and on the other side to have a considerable profit in relation to the state budget.

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